7.8 N-1 Call Routing

Each designated N-1 carrier is responsible for ensuring queries are performed on an N-1 basis where "N" is the entity terminating the call to the end user, or a network provider contracted by the entity to provide tandem access. Examples of N-1 routing are found in **Attachment A**.

7.9 Disconnected Telephone Numbers (Snap-back)

When a ported number is disconnected, that telephone line number will be released (Snap-back), after appropriate aging, back to the original Service Provider assigned the NXX in the LERG.

7.10 Default Routing Overload and Failures

Unless specified in business arrangements, carriers may block default routed calls incoming to their network in order to protect against overload, congestion, or failure propagation that are caused by the defaulted calls.

7.11 Number Pooling

The FCC Order on LNP provided no explicit guidance on number pooling. Various industry activities are underway addressing this issue and Number Pooling is outside the scope of this Task Force.

7.12 *NPAC to LSMS Architectural Restrictions*

All networks will rely on the NPAC database as the ultimate source of porting data. Synchronization of networks to a single set of routing data is paramount to network operations. Therefore appropriate restrictions must be placed upon how these network elements may interconnect from an architectural perspective.

Specifically, the NPAC shall download relevant porting data required by participating carriers or their agents for the specific subset of network nodes. Consequently, the NPAC system shall be the source of all porting data for all carriers or agents of those carriers, thereby being the sole originator of all downloads.

As a result of these restrictions, the LSMS must operate as the intermediate database management system which receives downloads from the NPAC, and then further downloads directly to the appropriate SCP functionality in its associated network(s).

Through this architecture, it is intended that if a systems provider is performing a service management functionality, then this systems provider is responsible for contributing its appropriate share of the economic support (as determined via regulatory actions on cost allocation) to the NPAC. The local SMS architecture must not allow service providers to avoid their allocation of the shared NPAC costs. Such architecture does not preclude the implementation of the LSMS functionality in a distributed manner in an individual service provider's network.

7.13 *High Volume Call In Numbers (Choke Network)(Further study req.)*

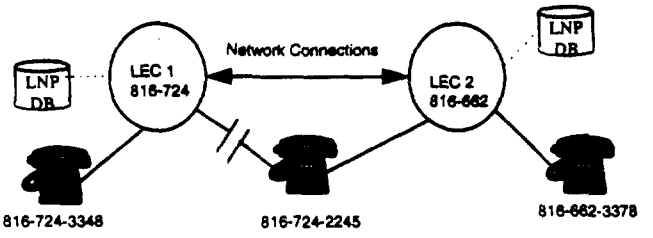
An area of concern regarding LNP is High Volume Call In (HVCI) networks. When a carrier determines that a customer regularly generates large volumes of terminating traffic, the customer may be moved over to an HVCI network. Examples of these types of customers could be radio stations that regularly hold contests that require many participants to call in a short period of time. An HVCI network allows all such customers to be assigned numbers in an NPA-NXX (e.g., 213-520) dedicated for HVCI. This HVCI number is the number that is announced for any high call in event. Switches in the area can be designed to segregate traffic for HVCI numbers and route it via trunk groups that are dedicated to the network and do not overflow to other trunk groups. The dedicated trunks are engineered to handle limited traffic and, in this way traffic is throttled and cannot congest the network. Such networks has proven to be effective in limiting the effects of large call in events.

However, with LNP before route selection takes place a database query is performed on calls to portable NPA-NXXs. If HVCI numbers are portable, they can generate large volumes of queries that can congest the signaling links and SCPs. Also if the HVCI number is ported and an LRN is returned in the database response, the call will not be routed via HVCI-dedicated trunks. This congestion can in turn effect other POTS type services which compromises the design of HVCI networks. One way to avoid this is to not perform queries on NPA-NXXs dedicated for HVCI networks. Further study is required in order to determine the proper network arrangements.

8. LNP Call Scenarios - Local to Local View

Example LNP call scenarios on Service Provider Portability are shown in Figure 2. See additional example scenarios in Attachment A for N-1 Call Routing.

Local Number Portability (LNP)
Service Provider Portability



All Scenarios -- 816-724-2245 changes service providers from LEC 1 to LEC2.
NXX's 724 and 662 are considered portable NXX's.

SCENARIO 1:
1. 724-3348 calls 724-2245
2. 724-2245 cannot be found on LEC 1's switch so, a query is launched to the LEC 1's LNP Database to determine the LRN for 724-2245. The LRN returned is 816-662-XXXX.
3. The call is routed to LRN 816-662-XXXX, LEC 2's switch.
4. LEC 2 terminates the call to 724-2245.

SCENARIO 2:
1. 662-3378 calls 724-2245
2. The number is found on the LEC 2 switch and the call is terminated. No query is required.

Scenario 3:
1. 724-3348 calls 662-3378.
2. The 662 NXX is identified as a portable NXX and a query is launched to LEC 1's LNP Database to determine the LRN for 662-3378. Because the number is not ported the DN (Dialed Number) is returned and the call is routed via normal network routing.
3. The call terminates to LEC 2's switch.
4. LEC 2's switch terminates the call to 662-3378.

lnpexinf.ppt

Figure 2

9. NPAC Regions

The following number of Number Portability Administration Center (NPAC) regions, their geographic coverage areas, and the NPAC assignment of Canada and the U.S. Caribbean are shown in Figure 3 and Chart 1:

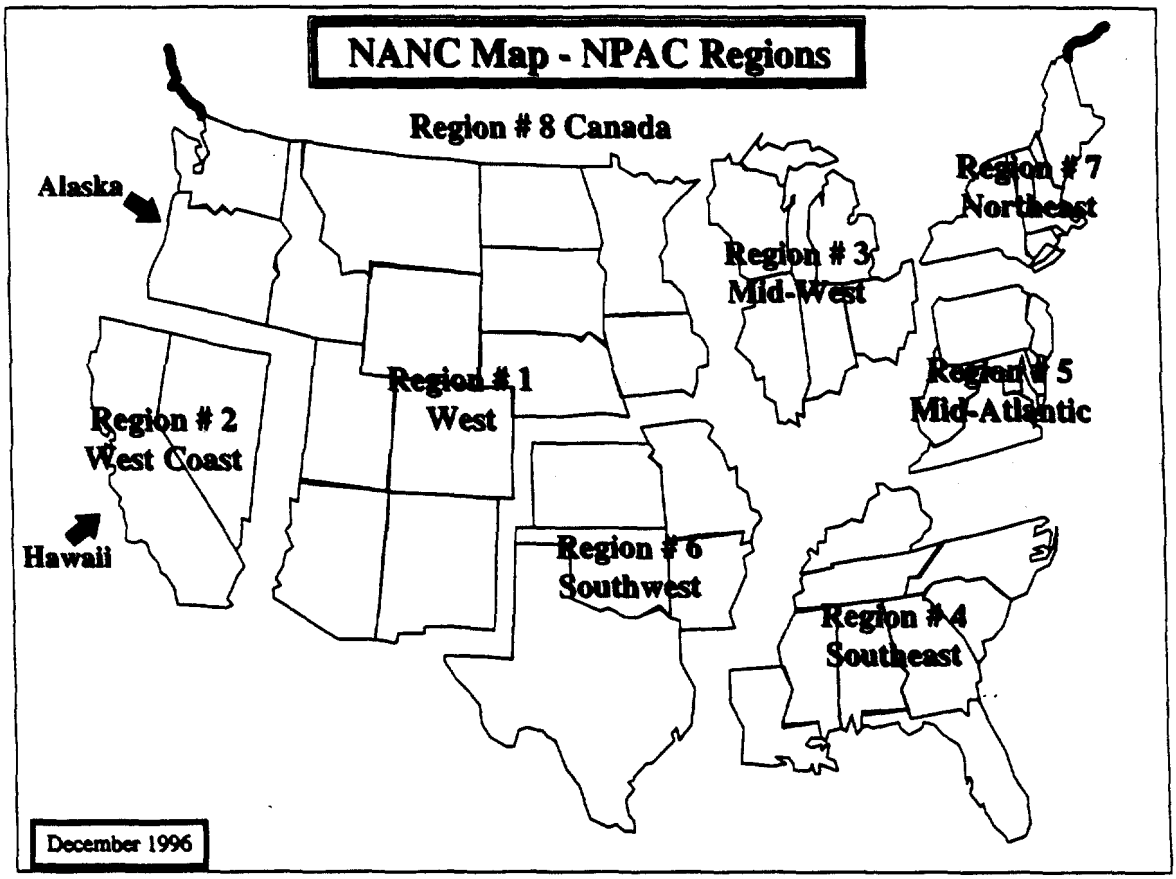


Figure 3

Factors considered in developing the NPAC regions were:

⇒ Economic efficiency and administrative simplicity -- On these factors, having multi-state NPACs is clearly superior to either an NPAC for each state or a single NPAC for the entire country.

⇒ Existing LLCs -- Each proposed region has an LLC which has chosen an NPAC vendor. The work at the state level should be built upon rather than re-invented.

⇒ Uniform sizes -- The number of access lines in the proposed regions are roughly comparable.

⇒ Existing regulatory structures -- State PUCs have formed regional associations that correspond to the proposed NPAC regions. These associations were formed to allow the PUCs to deal jointly with a Regional Bell Operating Company.

⇒ National responsibilities -- The NANC Architecture Task Force recognizes that Canada intends to create its own NPAC to serve all of Canada.

GEOGRAPHIC COVERAGE CHART

Region # 1: WESTERN	Washington, Oregon, Montana, Wyoming, North Dakota, South Dakota, Minnesota, Iowa, Nebraska, Colorado, Utah, Arizona, New Mexico, Idaho, and Alaska
Region # 2: WEST COAST	California, Nevada, and Hawaii
Region # 3: MID-WEST	Illinois, Wisconsin, Indiana, Michigan, and Ohio
Region # 4: SOUTHEAST	Florida, Georgia, North Carolina, South Carolina, Tennessee, Kentucky, Alabama, Mississippi, and Louisiana
Region # 5: MID-ATLANTIC	New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, and Washington, D.C.
Region # 6: SOUTHWEST	Texas, Oklahoma, Kansas, Arkansas, and Missouri
Region # 7: NORTHEAST	Vermont, New Hampshire, Maine, New York, Connecticut, Rhode Island, and Massachusetts
Region # 8: CANADA	

Chart 1

1. The NANC Architecture Task Force recommends seven (7) NPACs to cover the 50 United States and the U.S. territories in the North American Numbering Plan Area (e.g. U.S. Virgin Islands and Puerto Rico). Refer to the Chart 1 for specifics.
2. The NANC Architecture Task Force recommends that the U.S. territories choose from one of the seven (7) U.S. NPACs.
3. The NANC Architecture Task Force recognizes that Canada intends to create its own NPAC to serve all of Canada.

10. NPA NXX Assignments - Ported Numbers

The NPA NXX XXXX's (Ten Digit Phone Numbers) for ported numbers are assigned to their respective NPAC regions. Uploads and downloads via the SOA and LSMS interfaces, respectively, are transmitted to and from their assigned NPAC platforms.

11. Virtual NPACs

Virtual NPACs are not precluded. If an NPAC vendor wins two or more regions, that vendor is not precluded from serving one or more of the regions on the same platform as long as the vendor meets all service requirements as specified in the contract or in End User Agreements.

11.1 NPAC SOA and LSMS Link(s)

Under the Virtual NPAC arrangement, Service Providers are not precluded from accessing the vendor's one NPAC platform for SOA and LSMS functionality via one or more physical links. Link capacity limitations such as reliability and performance requirements will determine the quantity of physical SOA and LSMS link(s).

The service provider is responsible for contributing its appropriate share of the economic support to the NPAC vendor for each region in which it operates.

11.2 Point of Presence (POP)

The NPAC vendor will provide the physical links (SOA/LSMS) from the NPAC platform to each respective POP (Physical Facility) as identified by each regional LLC. Each service provider or its agent that directly connects to the NPAC shall be required to provide SOA and/or LSMS connectivity to the POP.

12. NPAC CERTIFICATION PROCESS

12.1 TECHNICAL REQUIREMENTS

12.1.1 IIS

The NPAC vendor(s) and any entity directly connecting to the NPAC platform are required to use the current NPAC SMS Interoperable Interface Specification (IIS) as adopted by NANC.

12.1.2 FRS

The NPAC vendor(s) and any entity directly connecting to the NPAC platform are required to use the current NPAC SMS Functional Requirement Specification (FRS) as adopted by NANC.

12.2 BUSINESS & ARCHITECTURE REQUIREMENTS

12.2.1 LLC (Limited Liability Company)

Each NPAC vendor has to be established under the Regional LLC. At a minimum, each respective Regional LLC has to keep its respective vendor in compliance with the Architecture requirements identified by NANC.

The sole purpose of the formation of a Limited Liability Corporation (LLC) is to create an entity to select and manage a neutral third party number portability administrator. Example activities of the LLC are the negotiation of the third party contract, prioritization of platform/software upgrades and on going direction of the third party's activities as described in the master contract. Membership of the LLC is not required for service providers to receive services from the neutral third party.

12.2.2 Competitively Neutral Pricing

The NPAC vendors have to be competitively neutral in pricing. It is the responsibility of each respective Regional LLC to ensure that competitively neutral pricing is consistent with FCC and state regulatory mandates.

12.2.3 Competitive Neutral Service

The NPAC vendor shall provide non-discriminatory service to all users.

12.2.4 NPAC User Criteria

NPAC Users are required to be telecommunications Service Providers or facilities-based[4] interexchange carriers that have been certified by the FCC or a State Public Utility Commission or are under contract to a Service Provider or facilities-based interexchange carrier to provide billing, routing, and/or rating for that respective Service Provider or interexchange carrier. The above criteria limits NPAC access to those with an operational need for NPAC service in order to provide local number portability. These limitations are necessary to protect security of information and to minimize NPAC costs.

12.3 NANC

12.3.1 Architectural Change Approval Process

All NPAC/SMS architecture changes will be approved by NANC. Implementation of these changes will be managed via each respective Regional LLC with its respective NPAC vendor. If NANC is dissolved, an oversight body should be identified or established to support/approve NPAC/SMS architecture changes.

[4] The term facility based is used in this document to describe carriers who own or lease switching equipment.

12.3.2 Conflict Resolution

Any conflicts between Service Providers in relation to NANC architecture will be escalated to NANC for conflict resolution.

12.4 LLC Merger Process

The merging of Regional LLC's is not precluded.

12.5 NPAC Business Roles and Responsibilities

12.5.1 Neutral Third Party

The NPAC will be staffed by a neutral third party vendor.

12.5.2 NPAC Role

The primary role of the NPAC will be to assist users in obtaining access to the NPAC SMS. To perform this duty, the NPAC must support the following functional areas: administration, user support, and system support.

12.5.3 NPAC Administrative Functions

1. The administrative functions of the NPAC will include all management tasks required to run the NPAC.
2. The NPAC will work with the users to update data tables required to route calls for ported local numbers or required for administration.
3. The NPAC will be responsible for NPAC SMS logon administration, user access, data security, user notifications, and management.
4. The NPAC will be the primary contact for users that encounter problems with NPAC system features.
5. The user support function should also provide the users with a central point of contact for reporting and resolution of NPAC problems.
6. The system support function will provide coordination/resolution of problems associated with system availability, communications and related capabilities.
7. The NPAC hours of operation will be 24 hours a day, seven days a week.
8. The NPACs must meet the service level requirements as established by their respective LLCs.
9. The NPAC will provide reports to regulatory bodies as required.

12.5.4 Transition Guidelines

1. The NPAC will provide the same level of quality service during the period of transition to a new NPAC.
2. Transition to a new NPAC will be transparent to users.
3. Sufficient time will need to be established to allow each user to operate in a dual mode during transition to allow for installation of new NPAC links, testing of new NPAC links, problem resolution, installation at disaster recovery site, and de-installation of access links from old NPAC.

13. REFERENCE DOCUMENTS

(1) Illinois Commerce Commission Order 96-0089 dated March 13, 1996.
(2) FCC First Report and Order and Further Notice of Proposed Rulemaking; FCC 96-286; CC Docket 95-116, RM 8535; Adopted: June 27, 1996; Released: July 2, 1996.
(3) FCC First Memorandum Opinion And Order On Reconsideration; CC Docket No. 95-116, RM-8935; Adopted: March 6, 1997; Released: March 11, 1997.

Attachment A

EXAMPLE N-1 CALL SCENARIOS

Refer to Paragraph 7.8 of the main document for the definition of N-1 carrier. Also refer to Section 8 of the main document for the local to local view of LNP call scenarios.

Refer to the figure on the last page of this attachment to help understand the call processing and routing described in the following call scenarios.

All Scenarios:

1. 816-724-2245 has changed service providers from LEC-1 to LEC-2.
2. NXX's 724 and 662 are considered ported NXX's.

WIRELINE LONG DISTANCE CALLS

SCENARIO A1 (Long Distance - LNP/LRN Capable IXC):

1. 507-863-2112 calls long distance to 816-724-2245 from outside the ported area.
2. LEC-3 routes the call to the caller's pre-subscribed carrier without any requirement to determine the LRN.
3. The pre-subscribed IXC (IXC-1) is the N-1 carrier, determines the LRN by performing a database dip, and routes the call to LEC-2. If IXC-1 does not have a direct connection to LEC-2, calls may be terminated through tandem agreement with LEC-1.

SCENARIO A2 (Long Distance - IXC without LNP/LRN capability):

1. 507-863-2112 calls long distance to 816-724-2245 from outside the ported area.
2. LEC-3 routes the call to the caller's pre-subscribed carrier without any requirement to determine the LRN.
3. The pre-subscribed IXC (IXC-2) is the N-1 carrier. Because IXC-2 does not have LNP/LRN capability, IXC-2 should have an agreement with LEC-1 (or LEC-2) to terminate default routed traffic, and LEC-1 (or LEC-2) becomes the carrier actually performing the LNP/LRN function to determine proper routing.

WIRELINE LOCAL CALLS FROM OUTSIDE THE PORTED AREA

SCENARIO A3 (Local call outside ported area - LNP/LRN Capable LEC):

1. 816-845-1221 makes a call within her local calling area, but from outside the ported area to 816-724-2245.
2. LEC-4 is the N-1 carrier and performs the database dip to determine the LRN and then routes the call to LEC-2. If no direct connection exists between LEC-4 and LEC-2, calls may be terminated through tandem agreement with LEC-1.

SCENARIO A4 (Local call outside ported area - LEC without LNP/LRN capability):

1. 816-845-1221 makes a call within her local calling area, but from outside the MSA and ported area to 816-724-2245.
2. LEC-4 is the N-1 carrier and at some time may be required to perform the database dip to determine the LRN to route the call to LEC-2. Until that time, LEC-4 should arrange with LEC-1 (or LEC-2) to terminate default routed calls.

Simplified Trunking and SS7 Diagram for Connections to Ported Area

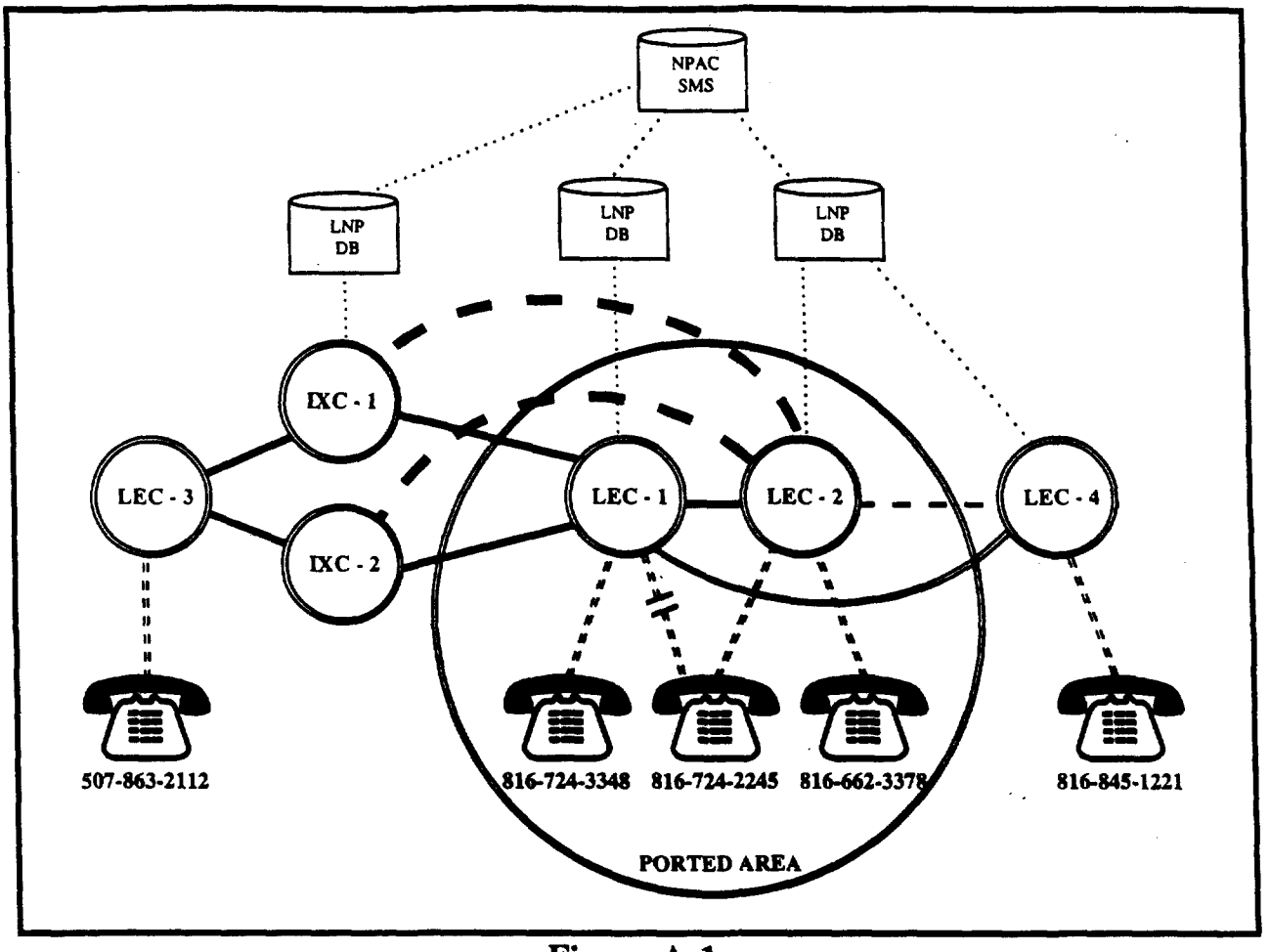


Figure A-1

Appendix E

LNPA Technical & Operational Requirements Task Force Report

North American Numbering Council

LNPA Technical & Operational Requirements Task Force Report

April 25, 1997

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

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Appendices

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

1. INTRODUCTION

1.1 The initial NANC LNPA Selection Working Group meeting occurred on November 8, 1996. At that meeting FCC representatives charged the LNPA Selection Working Group to fulfill the following responsibilities.

A. Determine the neutral third party or parties to act as the Local Number Portability Administrator(s) (LNPA)

B. Determine whether one or multiple LNPA(s) are selected

C. Determine the requirements for LNPA(s) selection

D. Define the duties of the LNPA(s)

E. Determine the geographic coverage of the regional databases

F. Develop technical standards, including interoperability operational standards, network interface standards and technical specifications

G. Develop guidelines and standards by which the North American Numbering Plan Administrator and the LNPA(s) share numbering information

1.2 At a subsequent LNPA Selection Working Group meeting the LNPA Architecture and LNPA Technical & Operational Requirements (T&O) Task Forces were formed to begin addressing these overall responsibilities. The LNPA T&O Task Force was directed to satisfy item F above, develop technical standards, network interface standards and technical specifications. This report describes the process the T&O Task Force used to satisfy this requirement.

1.3 The LNPA T&O Task Force interpreted this responsibility to include maintaining and updating these standards going forward and establishing a long term compliance process for Service Providers (SP) and Number Portability Administration Centers (NPACs).

2. MISSION STATEMENT

2.1 In support of the LNPA T&O Task Force responsibilities the following mission statement was developed:

> Develop initial and future NPAC SMS technical and operational requirements, identify pertinent industry standards, and recommend an oversight process to insure compliance.

3. TASK FORCE COMPOSITION

3.1 The LNPA T&O Task Force membership consists of representatives from the following companies and regulatory bodies:

Company/Association	Name
Ameritech	Donna Navickas
AT&T	Bonnie J. Baca (Co-Chair)
Bellcore	John Malyar
BellSouth	Ron Steen
BellSouth Wireless	Karl Koster
California PUC	Natalie Billingsley
Cox	Karen Furbish
EDS	Michael Haga
GTE	Bob Angevine
IBM	J. Paul Golick
ILLUMINET/ITN	Robert M. Wienski
Interstate Fiber Net	Steven Brownworth
Lockheed Martin	Larry Vagnoni
Lucent Technologies	Doug Rollender
MCI	Steve Addicks
Nortel	Marcel Champagne
NYNEX	Kevin Cooke
OPASTCO	John McHugh
Pacific Bell	Sandra E. Cheung
Pac Bell Mobil Svc	Linda Melvin
Perot Systems	Tim McCleary
Pocket Com/CTA	Nina Blake
SBC	Marilyn Murdock (Co-Chair)
Sprint	Dave Garner
Telecom Software Enterprises	Lisa Marie Maxson
Teleport	Phil Presworskey
Time Warner/NCTA	Karen Kay
US West	Cynthia Gagnon
WinStar	Steve Merrill
WorldCom	Bettie Shelby

4. WORKING ASSUMPTIONS

4.1 The LNPA T&O Task Force adopted the following working assumptions which govern the operation of the Task Force:

A. Membership on the Task Force adequately represents the industry.

B. Only issues that fall within the scope of the LNPA T&O Task Force Mission Statement are considered by the Task Force.

C. Task force members elect co-chairs from the Incumbent Local Exchange Carrier (ILEC) and Competitive LEC (CLEC) segments of the industry to administer Task Force activities and to determine consensus when required.

D. Decisions are adopted by consensus rather than by a simple majority with each entity receiving one (1) vote.

E. Unresolved issues are escalated by the co-chairs to the LNPA Selection Working Group for possible escalation to NANC if required.

F. The standards are adopted by the LNPA T&O Task Force for areas which do not fall under the jurisdiction of any other industry forum.

G. The industry will comply with the standards developed by the LNPA T&O Task Force.

5. STANDARDS RATIONALE

5.1 The LNPA T&O Task Force reviewed the activities in each of the seven (7) regions to evaluate the LNP planning activities currently underway. It was determined that certain documents were under development concurrently in each region. The regional LNP documents that had relevance to the Task Force mission included:

A. Requirements Documents

Request for Proposals (RFPs) were developed in each region to invite neutral third party vendors to submit proposals to provide NPAC SMSs. The RFP in each region included, either as an attachment or by reference, the Functional Requirements Specification (FRS), which defines the functional requirements for the NPAC SMS and the Interoperable Interface Specification (IIS) which contains the information model for the NPAC SMS mechanized interfaces. Since these two (2) requirements documents were being discussed concurrently in all regions, the Task Force determined that immediate consideration for standardization across the regions was required.

B. NPAC SMS Provisioning Process Flows

The NPAC SMS Provisioning Process Flows document describes the inter-service provider and NPAC SMS process flows. This series of nine (9) flows was also being addressed independently in each region. The Task Force determined that the flows also required immediate consideration for standardization.

5.2 The LNPA T&O Task Force reviewed the content of these regional documents and determined that they were essentially similar. These documents were each subsequently updated by the Task Force and are recommended as industry standards in Sections 7 through 9 of this report. The Task Force concluded there were significant advantages to the industry if standard FRS, IIS, and NPAC SMS Provisioning Process Flows were developed and endorsed by the industry. Following is a list of the most critical advantages:

A. Industry standards reduce work activities required by the regional teams resulting in earlier completion of certain critical path activities such as functional requirements for the NPAC SMS. Completion of this and other activities are necessary for the NPAC SMS vendors, the Service Providers (SPs), and other associated product vendors, to implement systems, centers, and processes according to the FCC schedule.

B. The work underway in the seven (7) regions was producing essentially equivalent FRS and IIS documents and provisioning flows resulting in duplication of effort

across the regions, and was therefore an ineffective use of the resources available for LNP deployment.

C. Standard NPAC SMS requirements and operational flows facilitate the design and development of associated processes such as the Local Service Request (LSR) process where procedures are defined as a national standard for the industry by the Ordering and Billing Forum (OBF).

D. The vendors that are currently developing or modifying LNP-related products such as Local SMS, Service Order Administration (SOA) interfaces, and network Service Control Points (SCP) are able to develop standard products rather than multiple versions based on regional differences, resulting in more timely and cost effective offers to the SPs.

E. There are currently numerous nationwide SPs and mergers and market expansions will result in additional nationwide SPs in the future. It is advantageous to these companies to maintain standard system requirements and processes to gain maximum efficiency and effectiveness in all LNP functions. For example, a standard interface between the NPAC SMS and the SP systems allows for minimum expenditure of time and resources while at the same time producing higher quality customer service processes.

6. ISSUES

6.1 Issues Introduction

6.1.1 During the initial meetings, the LNPA T&O Task Force identified certain contentious issues that, depending on the outcome, would significantly impact the standards contained in the requirements documents developed by the Task Force. Each of the five (5) issues described below was resolved by the Task Force and additional details and the resolution on each are contained in Appendix A.

6.2 LNP Provisioning Flows Issue

6.2.1 The issue concerned the amount of control the old and new SPs can exercise during the customer porting process in the NPAC as documented in the provisioning flows. Following failure by the Task Force to reach a consensus, the issue was escalated to the LNPA Selection Working Group on January 7, 1997, and presented to NANC on January 13. NANC directed the Task Force to continue working the issue and to report back to the NANC chairman on January 23.

6.3 Service Provider-to-Service Provider (SP-to-SP)Audit Issue

6.3.1 There was a disagreement regarding the use of SP-to-SP audits in the Number Portability Administration Center Service Management System (NPAC SMS). These audits are used when customers notify their SP of a repair problem, and the SP launches an audit to determine if there are discrepancies between NPAC SMS and Local SMS (LSMS) subscription data. This issue concerns minimizing the functions performed by the NPAC.

6.4 Mismatch of Provisioning Download and Network Upload Rate Issue

6.4.1 The NPAC SMS to LSMS interface transaction rate, as defined in the NANC FRS, is 25 telephone numbers (TNs) per second, sustained for five (5) minutes for each such interface. The SCP requirement states that the LSMS must support the download rate specified by the NPAC, and contains a goal for activating portability for subscribers within 15 minutes after the record for the ported subscriber is downloaded by the NPAC. This requirement is defined in the Generic Requirements for SCP Application and GTT Function for Number Portability, Issue 0.99, January 6, 1997. However, prior issues of this document consistently stated an SCP requirement of one (1) TN per second update rate; hence, the mismatch. The SCP generic requirements document also indicates that the NPAC SMS transaction rate places requirements for the processing of download records on the LSMS, SCP LNP application, and LNP GTT function, which must be addressed by the vendor and the SP.

6.5 Network Element Update Acknowledgment Issue

6.5.1 There is no acknowledgment of update from the network element (i.e., SCP) back to the NPAC SMS. This results in the NPAC SMS knowing only that the LSMS has received the ported TN information and does not tell it whether the SP's network was updated.

6.6 Interactive Voice Response Unit Issue

6.6.1 The LNPA T&O Task Force considered requiring an Interactive Voice Response (IVR) unit for NPAC development. The purpose of the IVR is to provide automated responses to calls issued by selected users (e.g., service providers' technicians, E911 personnel, etc.) who require the name of the Service Provider (SP) of a ported subscriber.

7. RECOMMENDATION - NPAC SMS PROVISIONING PROCESS FLOWS

7.1 The LNPA T&O Task Force adopted the Illinois LNP provisioning process flows and associated descriptions as a frame of reference for refining the NPAC SMS flows. The flows document the following inter-service provider and NPAC SMS processes:

A. Provisioning - Figure 1
B. Provisioning without unconditional 10-digit trigger - Figure 2
C. Provisioning with unconditional 10-digit trigger - Figure 3
D. Conflict flow for service creation provisioning process - Figure 4
E. Cancellation flow for provisioning process - Figure 5
F. Cancellation conflict flow for provisioning process - Figure 6
G. Disconnect process for ported telephone numbers - Figure 7
H. Audit process - Figure 8
I. Code Opening Processes - Figure 9

7.2 The original Illinois LNP provisioning process flows were updated to reflect the changes resulting from the resolution of the LNP Provisioning Flow Issue described in Section 6.2 above. In addition, each flow was reviewed and modified to ensure industry wide endorsement. The Task Force also reviewed and modified the associated process flow descriptions until each member of the team was able to endorse the language selected. The LNPA T&O Task Force recommends endorsement by NANC of these flows and descriptions as industry standards for adoption by each region. A pictorial representation of these flows, now referred to as Inter-Service Provider LNP Operations Flows and the associated descriptions, are contained in Appendix B.

8. RECOMMENDATION - NPAC SMS STANDARDS - FUNCTIONAL REQUIREMENTS SPECIFICATION (FRS)

8.1 The LNPA T&O Task Force adopted the Functional Requirements Specification (FRS) as a framework document. This document, which was originally developed by Lockheed Martin IMS Corporation, defined the functional requirements of NPAC SMS for use in the Illinois trial.

8.2 The NPAC SMS is a hardware and software platform that contains the database of information required to effect the porting of telephone numbers. In general, the NPAC SMS receives customer information from both the old and new SPs, validates the information received, and downloads the new routing information when an "activate" message is received indicating that the customer has been physically connected to the new SP's network. The NPAC SMS contains a record of all ported numbers and a history file of all transactions relating to the porting of a number. The NPAC SMS also provides audit functionality and the ability to transmit routing information to SPs to maintain synchronization of SP's network elements that support portability.

8.3 The Request for Proposal (RFP) in each of the remaining six (6) regions included, either as an attachment or by reference, a version of the Illinois FRS. Therefore, the vendor proposals received in each of the seven (7) regions were in response to substantially similar requirements.

8.4 The LNPA T&O Task Force updated the Illinois FRS, Version 1.4 to reflect agreed upon standards. This revised version was released as NANC FRS Version 1.0 on April 7, 1997. The current version of this document is referenced in Appendix C. The LNPA T&O Task Force recommends endorsement by NANC of the NANC FRS as an industry standard for use in developing and maintaining the NPAC SMS in each of the seven (7) regions.

8.5 This specification was developed primarily from a wireline number portability perspective. Unique wireless number portability requirements have not been fully considered in the development of this document. Therefore, modifications to this document may be required to support wireless number portability.